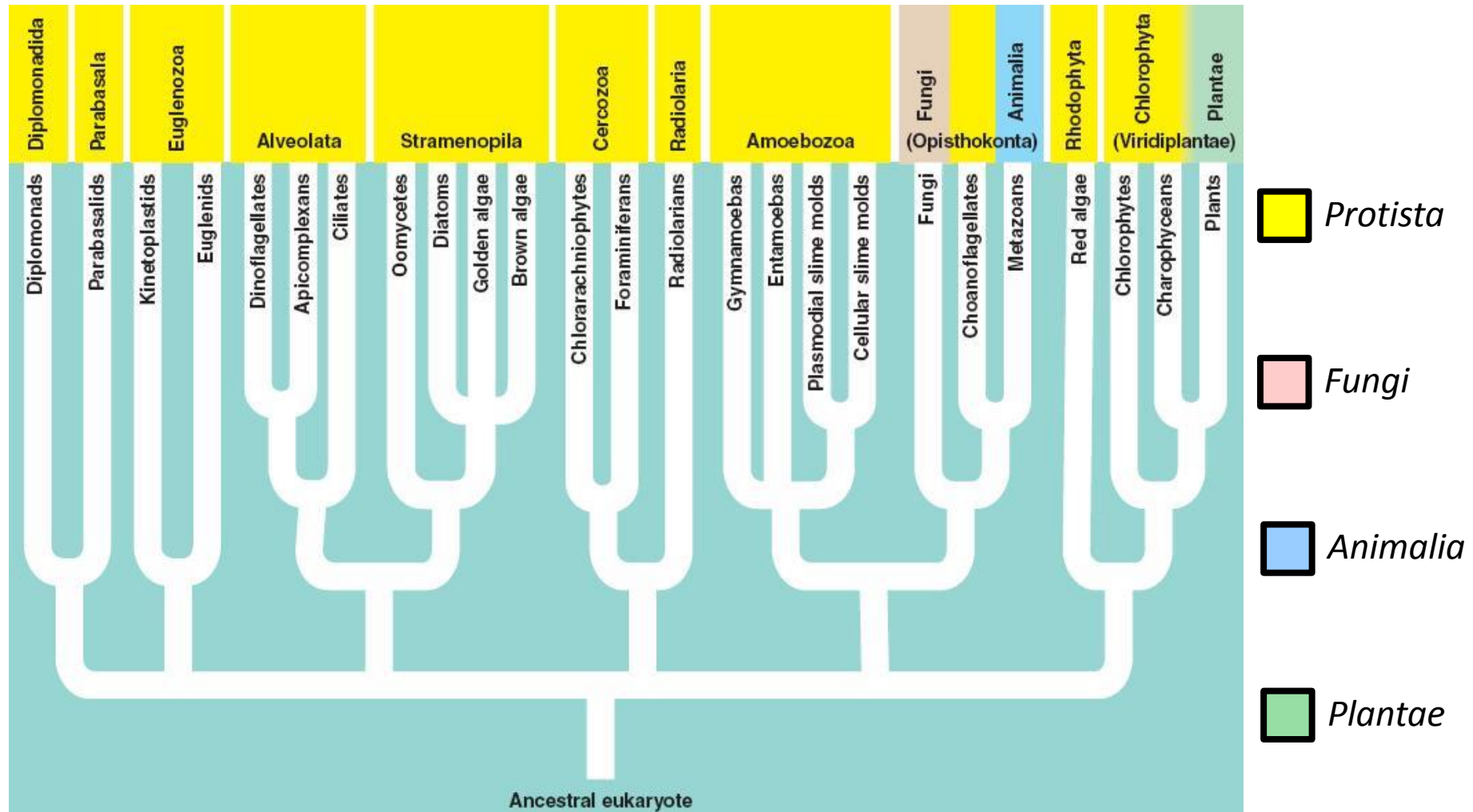




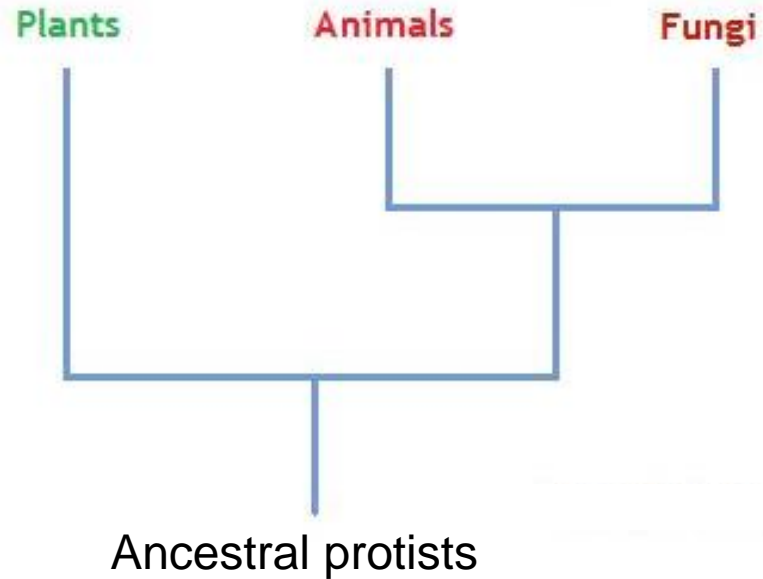
Kingdom Fungi

Where Do Fungi Fit In?



Most Closely Related Kingdom?

Cladogram of Animals, Plants, and Fungi

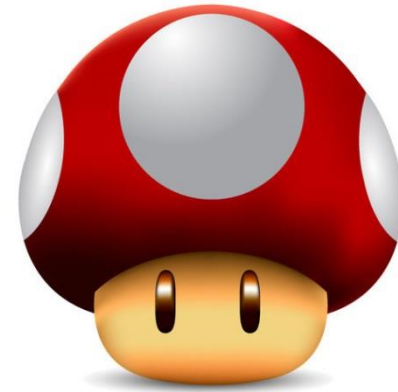


Kingdom Fungi

- Although often mistaken for plants, fungi are unique from both plants and animals

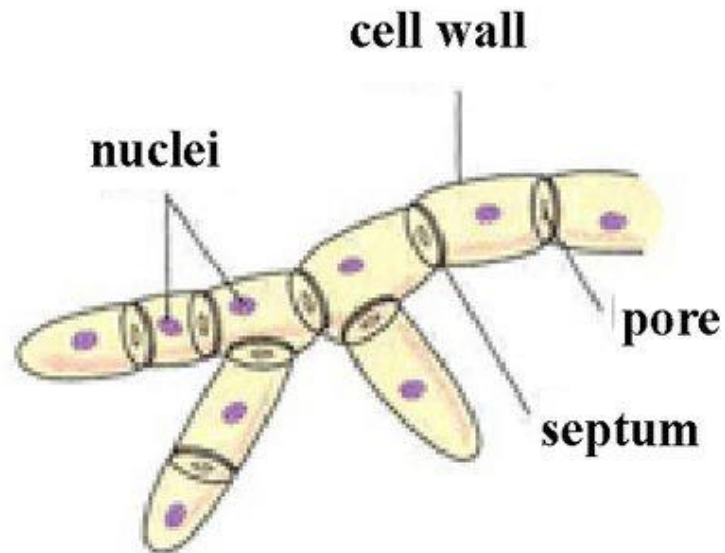
Main Characteristics of Fungi

- Mostly Multicellular
- NO photosynthesis: *heterotrophic*
- Mostly terrestrial
- Mostly decomposers
- Cell wall made from chitin (a carbohydrate)
- reproduce sexually (using spores) and asexual

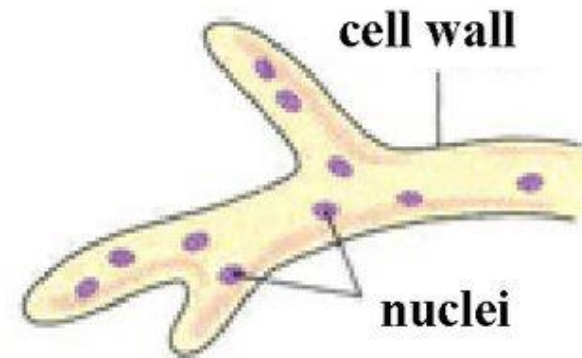


General Structure of Fungi

- Fungi are composed of HYPHAE (elongated cells that form a branching filamentous structure)
- Many hyphae are divided into individual cells by cell walls called SEPTA.



(a) septate hypha

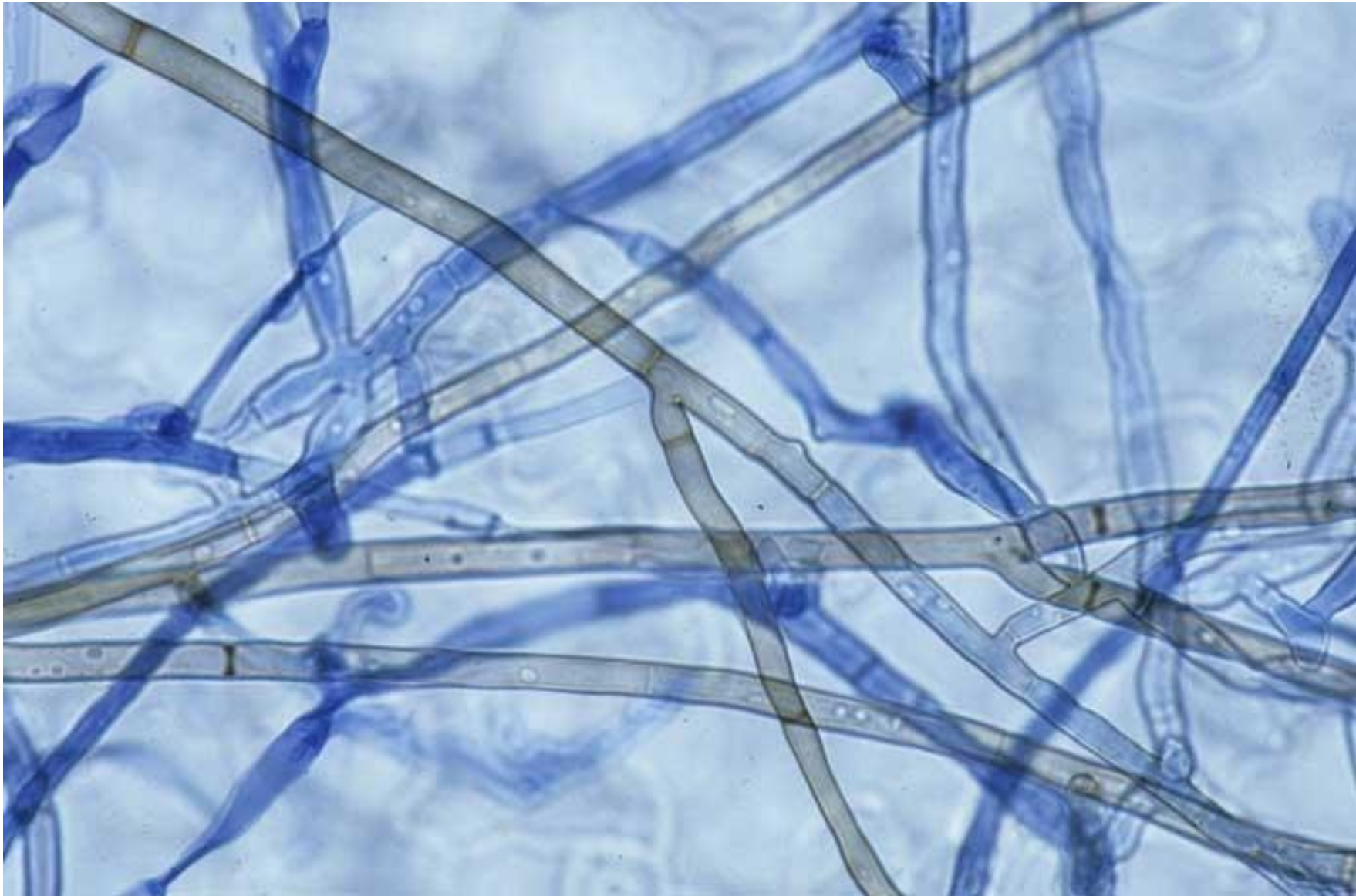


(b) nonseptate hypha

Non-Septate Hyphae

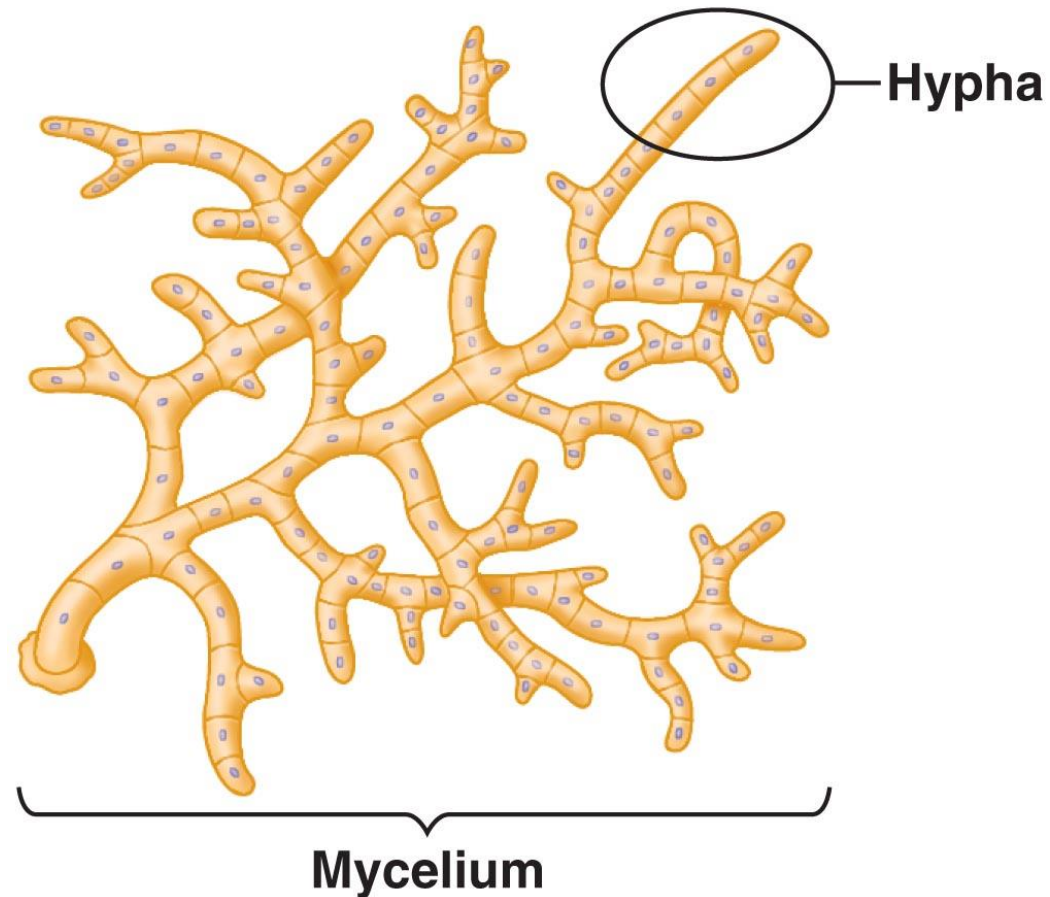


Septate Hyphae



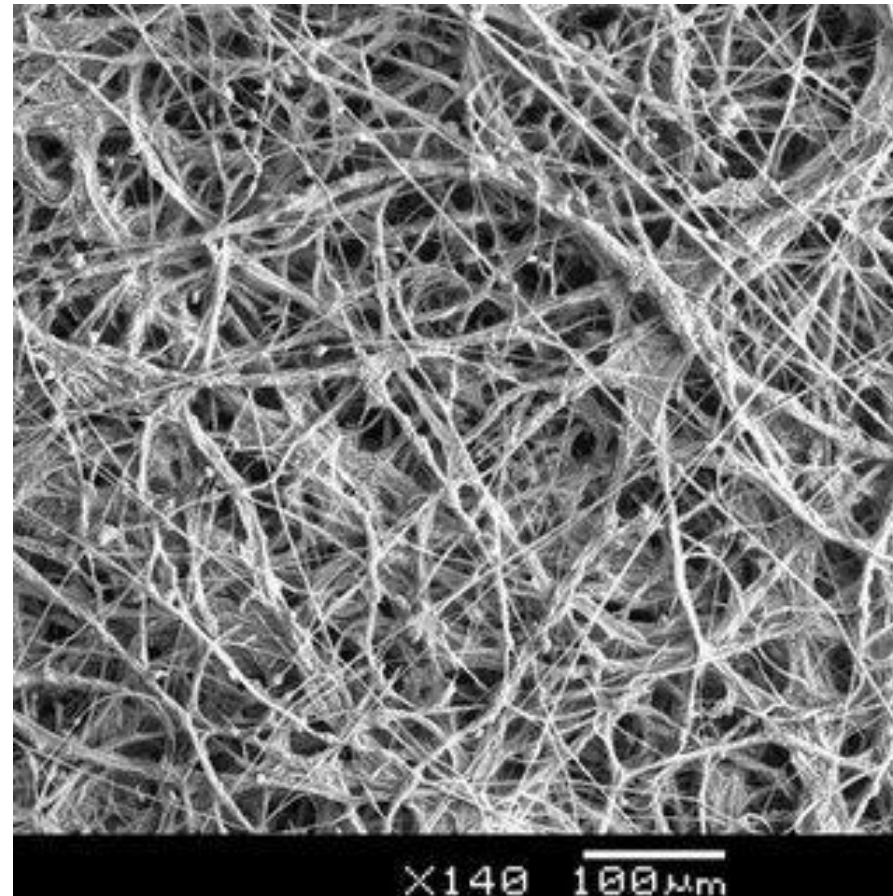
General Structure of Fungi

- multiple hyphae forming a branching network of filaments is called a MYCELIUM

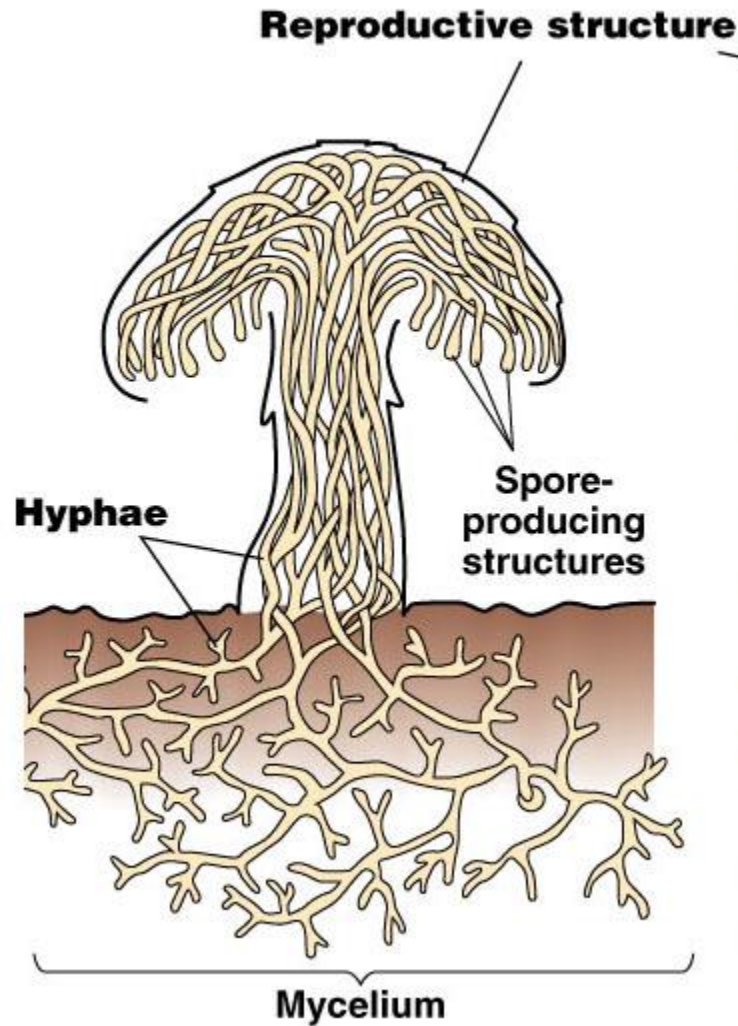


General Structure of Fungi

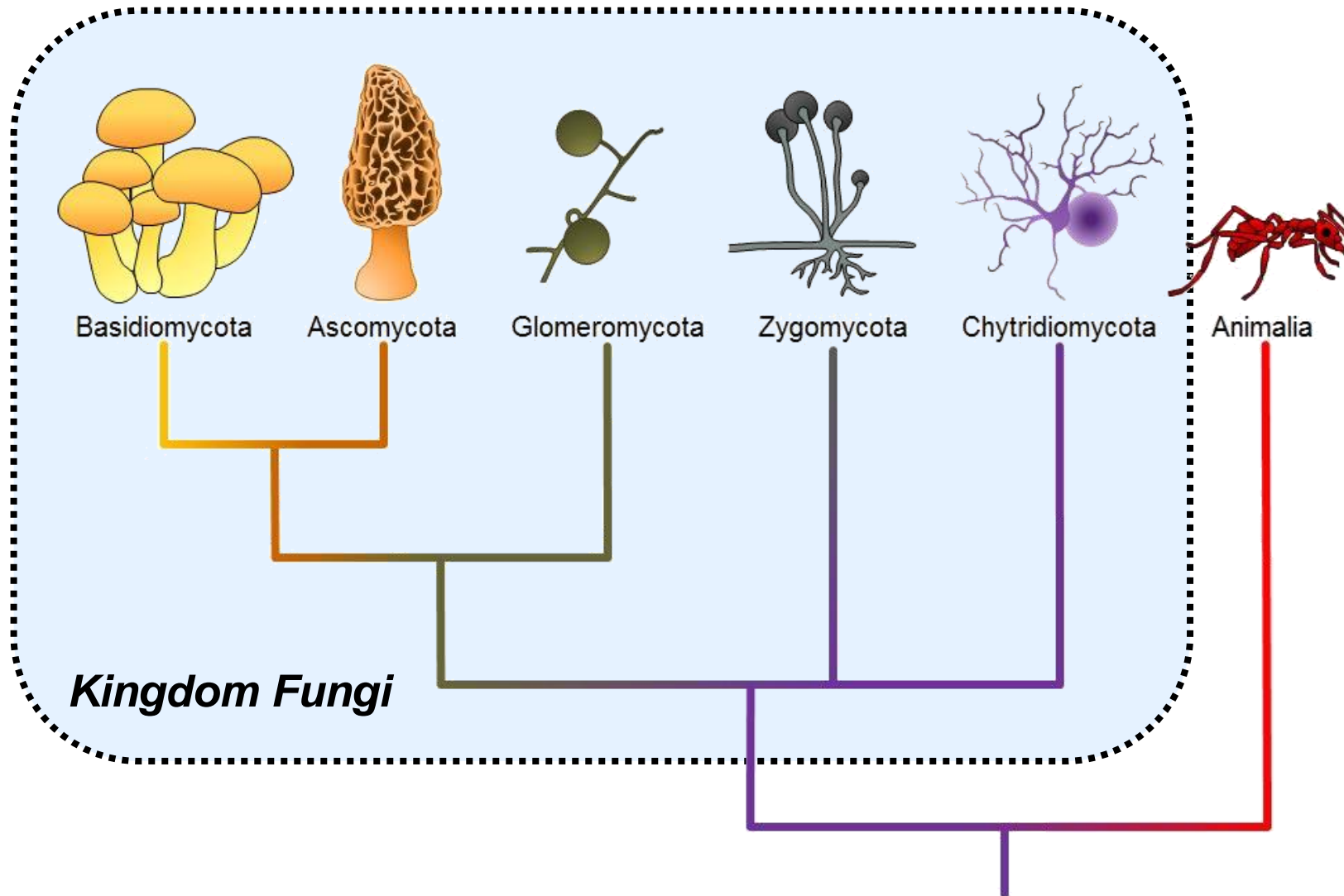
- multiple hyphae forming a branching network of filaments is called a MYCELIUM



General Structure of Fungi



Five Major Phyla



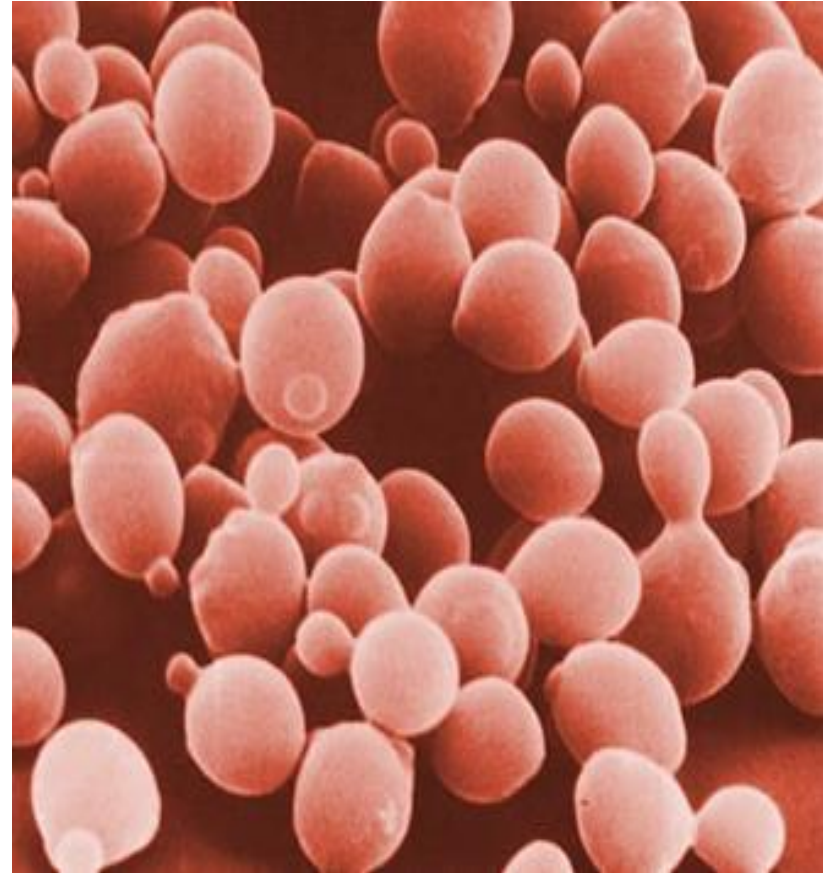
Phylum: Basidiomycota

- ***Key Features:***
 - Produce “mushroom-cap” fruiting bodies
 - Mostly decomposers
 - Includes puffballs, and bracket fungi



Phylum: Ascomycota

- ***Key Features:***
 - sexual spores formed in sac-like “ascus”
 - Important to humans for fermentation, and food
 - Very diverse



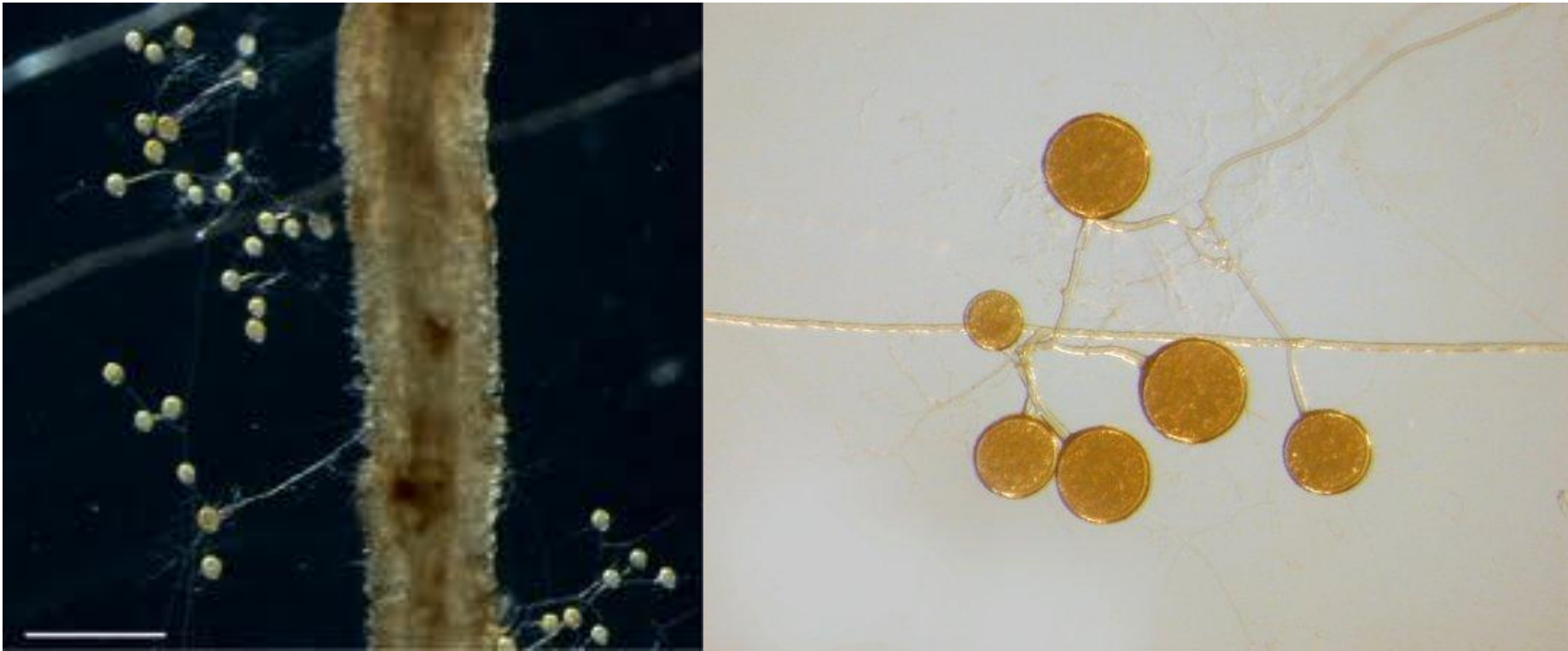
Phylum: Ascomycota

- Examples of ascomycetes:
 - Yeasts
 - Truffles
 - Morels
 - Dutch Elm disease
 - Chestnut blight



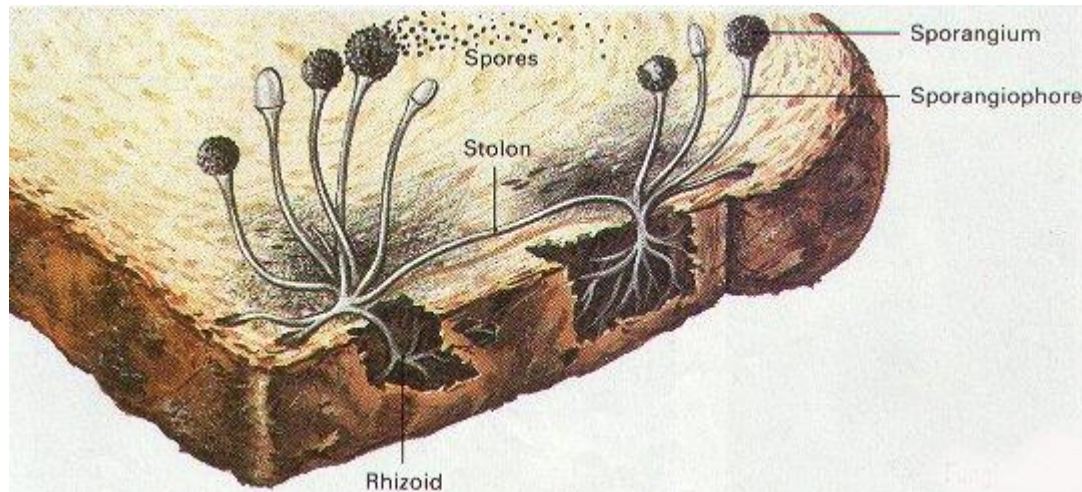
Phylum: Glomeromycota

- Key Features
 - All form symbiotic relationships with plant roots



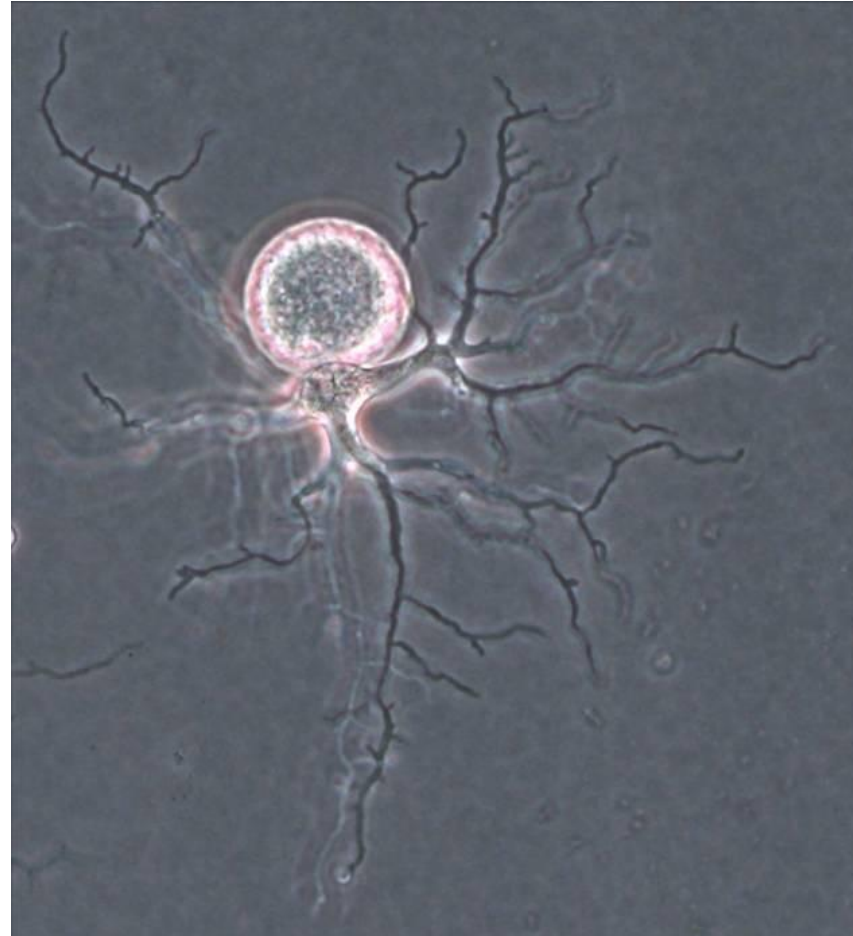
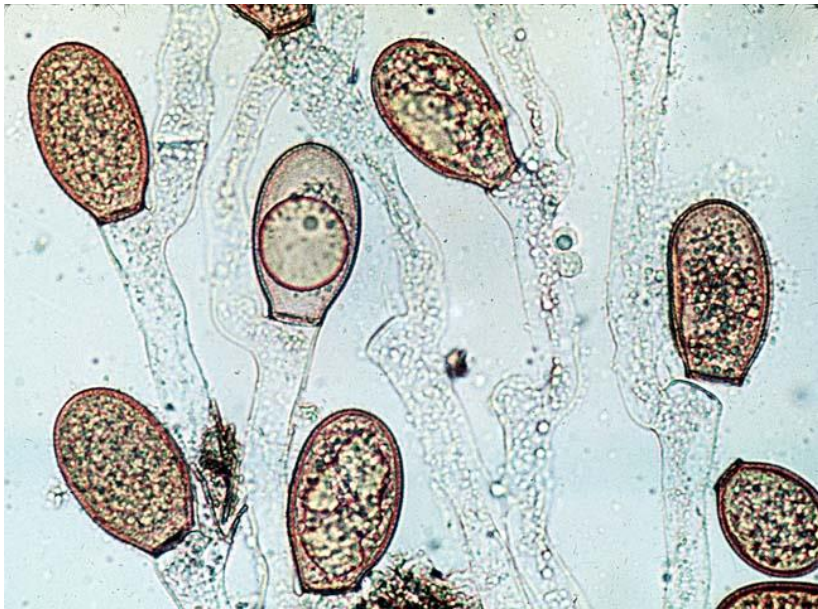
Phylum: Zygomycota

- **Key Features:**
 - Mostly soil fungi
 - Includes bread and fruit moulds
 - Multinucleate hyphae
 - Non-septate



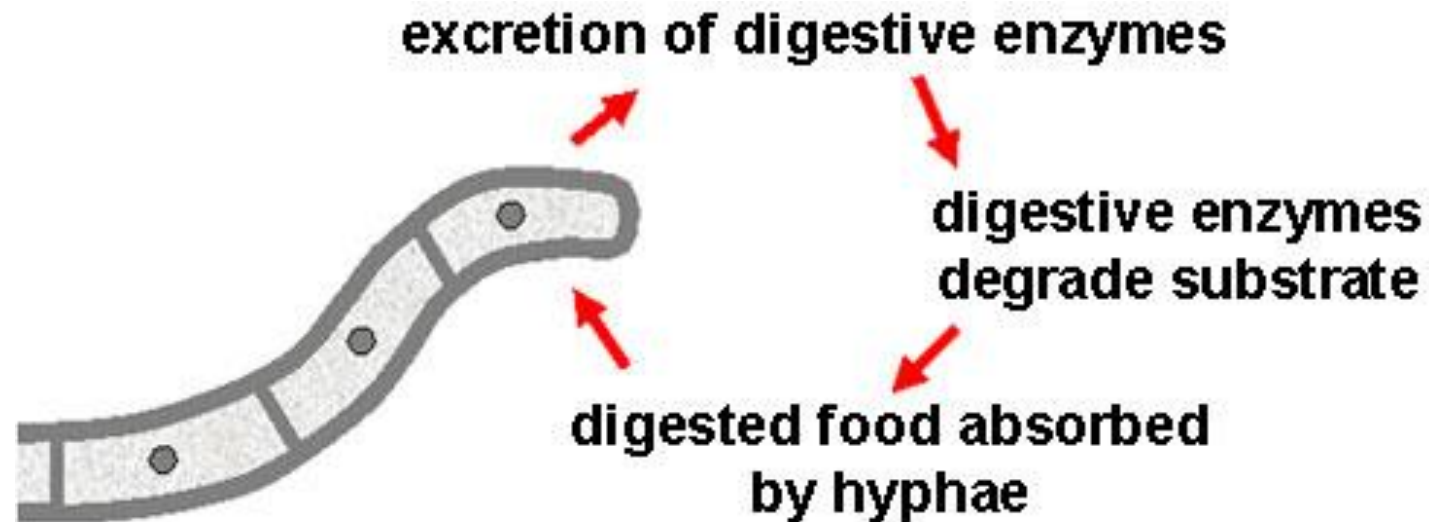
Phylum: Chytridiomycota

- **Key Features:**
 - Mostly decomposers
 - Some unicellular, some multicellular
 - Some have “swimming spores”



Extracellular Digestion

- Fungi grow beside or on their food source
- They excrete digestive enzymes into the surrounding environment
- These enzymes breakdown their food into simpler molecules that can be absorbed into the hyphae



Symbiotic Relationships in Fungi

- **Lichen**

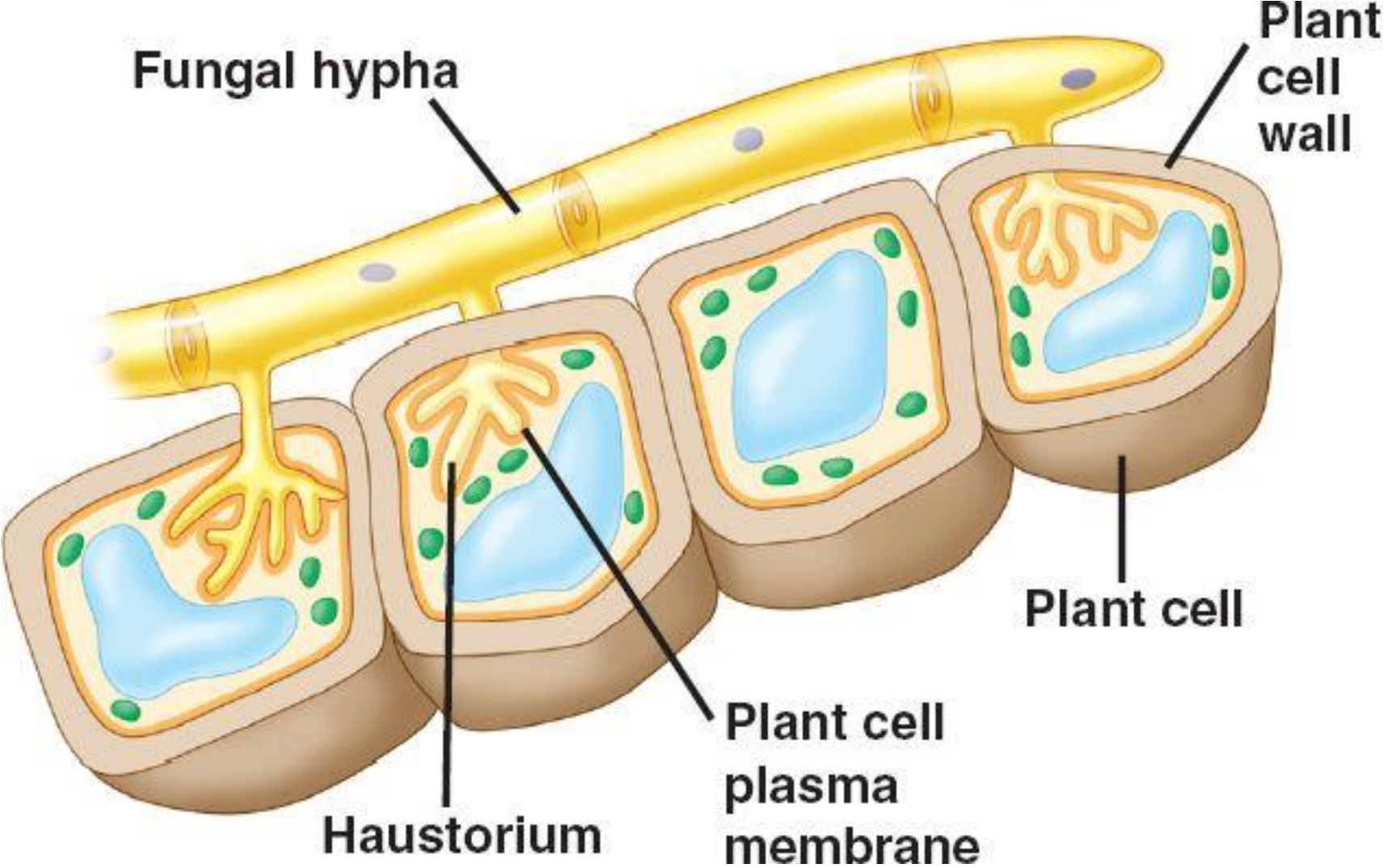
- Partnership between fungus and cyanobacteria, or green algae
 - **Fungus** provides structure, can digest / absorb nutrients and water and can protect from harsh conditions
 - **Cyanobacteria or algae** produce sugar (food)

Symbiotic Relationships in Fungi

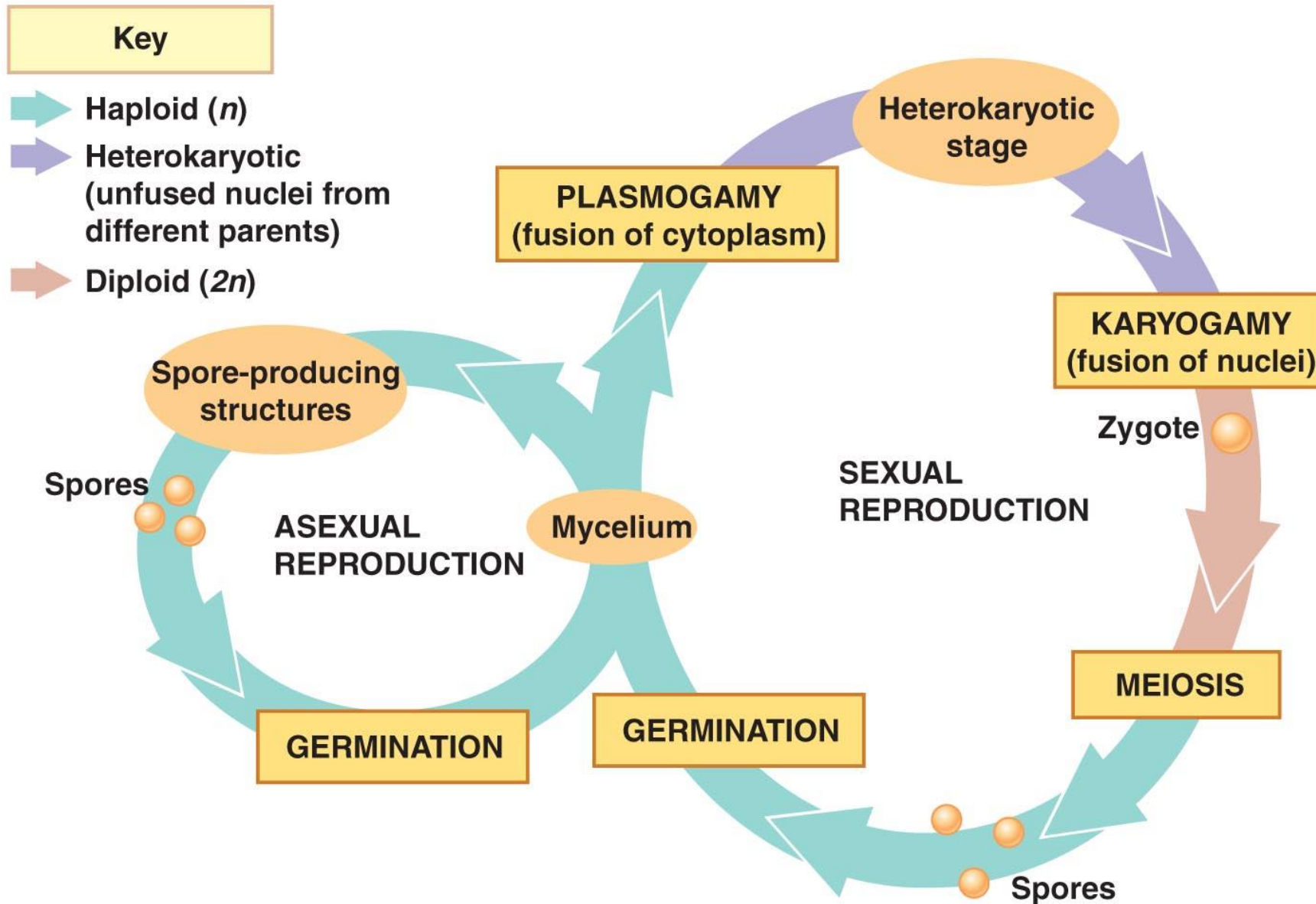
- **Mycorrhizae**

- Partnership between fungus and plant roots
 - **Fungus** provides increased capacity for absorption of nutrients and water
 - **Plant** produces sugar (food)

Mycorrhizae



Life Cycle of a Fungi



Life Cycle of a Fungi

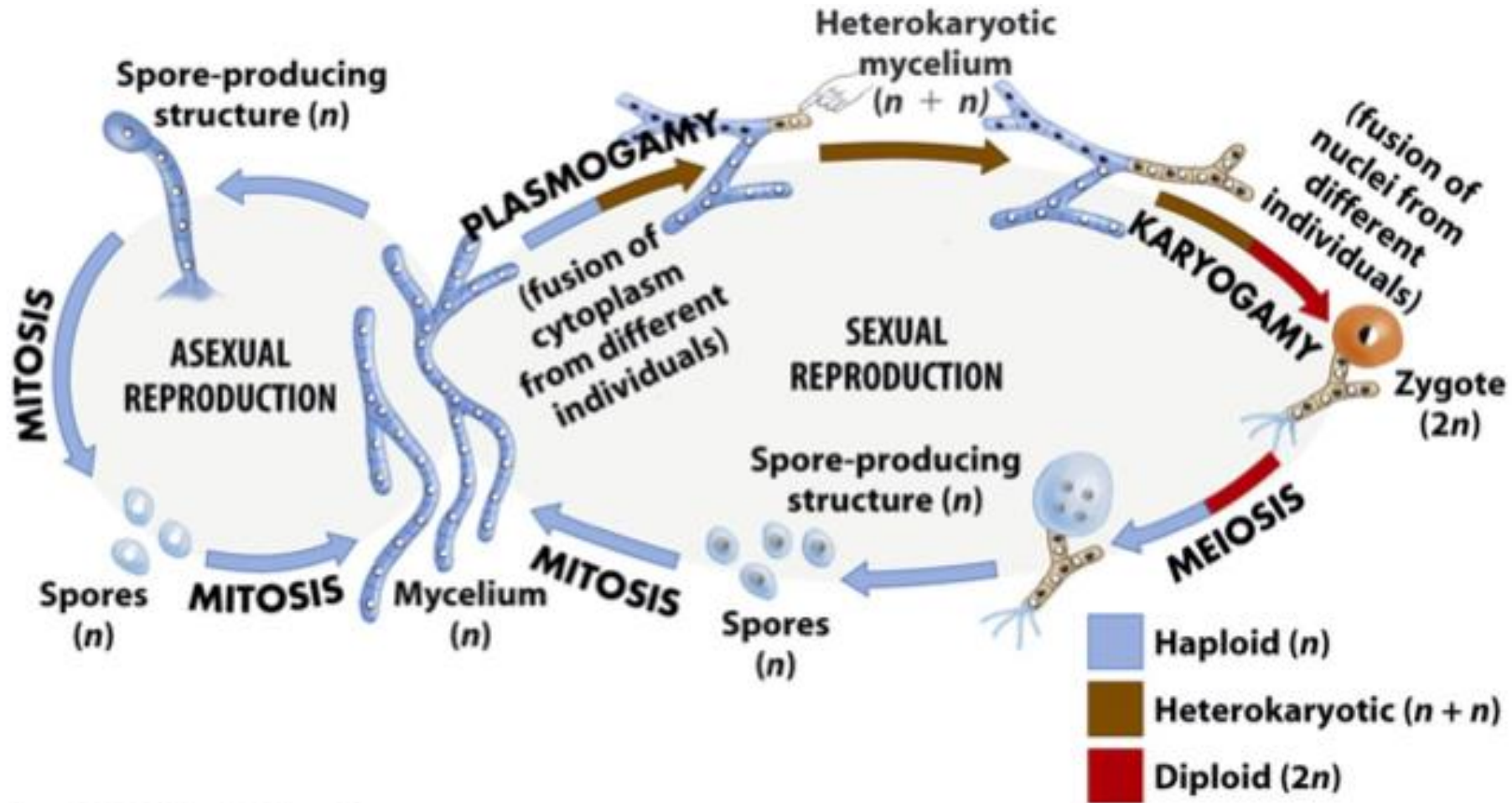
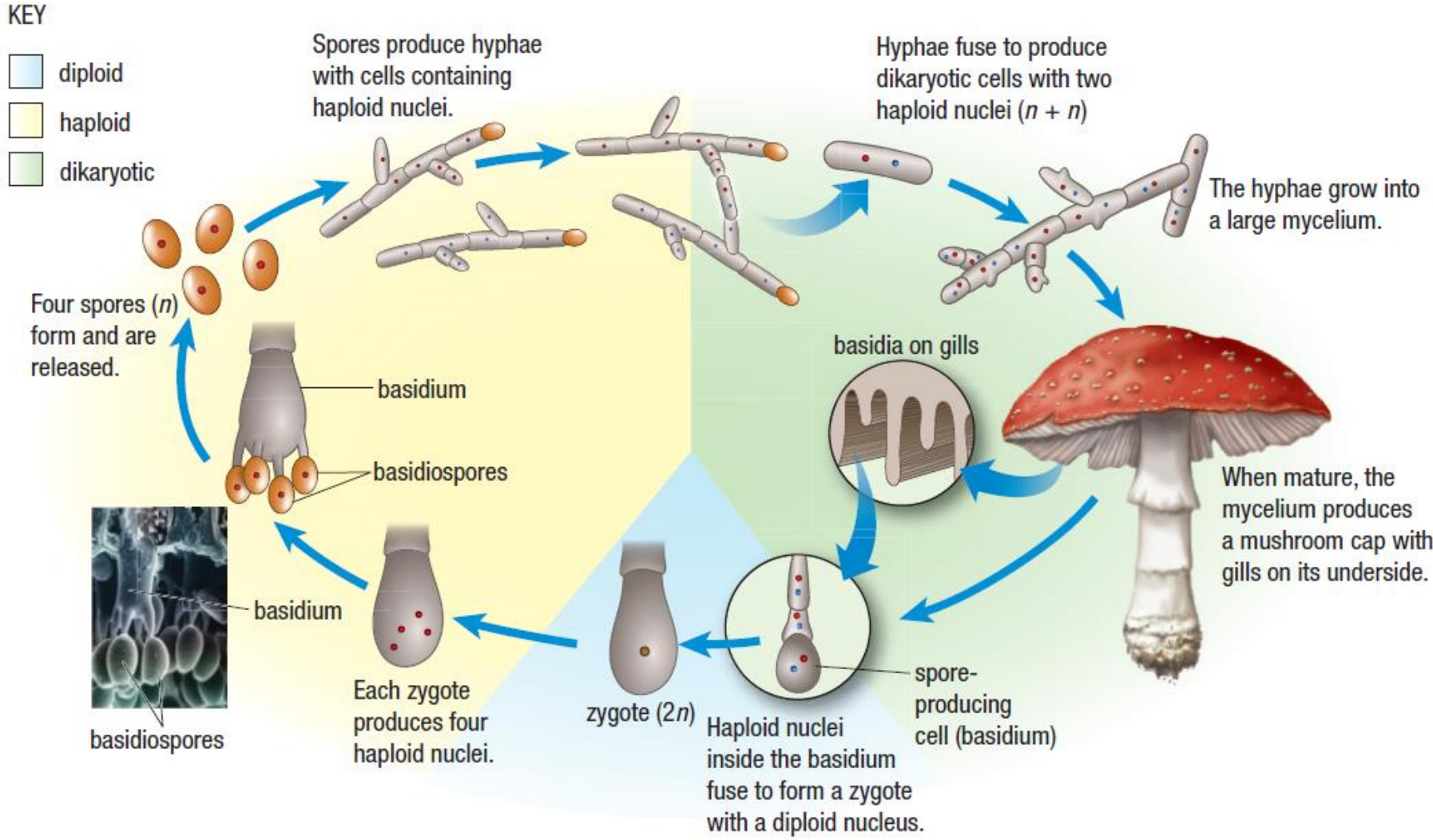


Figure 30-13a Biological Science, 2/e
© 2005 Pearson Prentice Hall, Inc.

Life Cycle of a Basidiomycete



Life Cycle of a Basidiomycete

